

PCT03-034

1/5

PCT REQUEST

Original (for SUBMISSION) - printed on 12.06.2003 02:09:42 PM

For receiving Office use only 0 International Application No. 0-1 International Filing Date 0-2 Name of receiving Office and "PCT 0-3 International Application" Form - PCT/RO/101 PCT Request 0-4 PCT-EASY Version 2.92 Prepared using 0-4-1 (updated 01.04.2003) Petition 0-5 The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty Korean Intellectual Property Office Receiving Office (specified by the 0-6 applicant) (RO/KR) Applicant's or agent's file reference PCT03-034 0-7 MULTI-LAYERED CARBON NANOBALL FOR Title of invention T **DEODORIZATION** Ш Applicant applicant only This person is: II-1 · all designated States except US Applicant for 11-2 LG HOUSEHOLD & HEALTHCARE CO., LTD. Name 11-4 20 Yoido-dong, Youngdungpo-gu 11-5 Address: 150-721 Seoul Republic of Korea State of nationality KR 11-6 State of residence KR 11-7 +82-42-860-8130 Telephone No. 11-8 +82-42-863-2076 Facsimile No. 11-9 Applicant and/or inventor 111-1 applicant and inventor This person is: 111-1-1 Applicant for US only 111-1-2 KIM, Jong-Yun Name (LAST, First) 111-1-4 110-104, Sejong Apt., Jeonmin-dong, III-1-5 Address: Yuseong-gu, 305-728 Daejeon Republic of Korea KR State of nationality 111-1-6 State of residence KR 111-1-7

Original (for SUBMISSION) - printed on 12.06.2003 02:09:42 PM

		Applicant and/or inventor	
			applicant and inventor
		•	·
133-502 Hanil-Town Apt., Jowon-dong, Jangan-gu, Suwon-si, 440-709 Gyeongg-do Republic of Korea KR KR KR KR KR KR KR K	*** = =	'''	
Jangan-gu, Suwon-si, 440-709 Gyeongg-do Republic of Korea Republic of Korea KR III-2-7 State of residence KR III-3-1 Applicant and/or inventor III-3-1 Applicant for III-4-1 Applicant for III-4-1 Applicant for III-4-1 Applicant for III-4-5 State of nationality III-4-6 State of nationality III-4-6 State of nationality III-4-7 State of residence III-4-8 State of nationality III-4-1 This person is: III-4-5 Applicant and/or inventor III-4-6 State of nationality III-4-7 State of residence III-4-8 State of nationality III-4-7 State of residence III-4-8 State of nationality III-4-7 State of residence III-4-8 State of nationality III-4-9 Applicant and/or inventor III-4-1 This person is: III-4-1 This person is: III-4-2 Applicant and/or inventor III-4-5 This person is: III-4-6 Name (LAST, First) III-5-1 Applicant and/or inventor III-5-1 This person is: III-5-2 Applicant for III-5-3 Applicant for III-5-4 Name (LAST, First) III-5-5 Address: III-5-6 State of nationality III-5-6 State of nationality III-5-6 State of nationality III-5-6 State of nationality III-5-7 Address: III-5-8 State of nationality III-5-8 State of nationality III-5-1 Applicant or III-5-1 Applicant or III-5-1 Applicant or III-5-1 Applicant or III-5-2 Applicant or III-5-3 Address: III-5-5 State of nationality III-5-6 State of nationality III-5-7 Applicant or III-5-8 State of nationality III-5-9 Address: III-5-9 Address: III-5-1 Applicant or III-5-2 Applicant or III-5-3 Address: III-5-4 Applicant or III-5-5 Address: III-5-6 State of nationality III-5-7 Applicant or III-5-8 State of nationality III-5-9 Applicant or III-5-9 Applicant or III-5-9 Applicant or III-5-1 Ap		·	
	111-2-5	Address:	
Republic of Korea KR KR KR KR KR KR KR K			
		3	· · · · · · · · · · · · · · · · · · ·
III-3-1 This person is: applicant and inventor US only III-3-2 Applicant for US only III-3-5 Address: 109-902 Sejong Apt., Jeonmin-dong, Yuseong-gu, 305-728 Daejeon III-3-6 State of nationality KR III-3-7 State of residence KR III-4-1 This person is: applicant and inventor III-4-2 Applicant for US only III-4-5 Address: 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon III-4-6 State of nationality KR III-5-1 This person is: applicant and inventor III-5-2 Applicant and/or inventor III-5-4 Applicant and/or inventor III-5-5 Address: applicant and inventor III-5-6 State of nationality KR III-5-6 State of nationality KR III-5-6 State of nationality Substituting Address: III-5-6 State of nationality Substituting Address: Applicant for US only YOON, Suk-Bon Republic of Korea III-5-6 State of nationality KR III-5-7 State of nationality KR III-5-8 State of nationality KR III-5-9 State of nationality KR III-5-1 State of nationality KR III-5-2 State of nationality State of natio			KR
		1 ''	at the second of
	111-3-1	This person is:	
III-3-5 Address: 109-902 Sejong Apt., Jeonmin-dong, Yuseong-gu, 305-728 Daejeon Republic of Korea KR III-3-7 State of residence KR III-3-7 State of residence KR III-4-1 Applicant and/or inventor III-4-1 This person is: applicant and inventor US only Name (LAST, First) KANG, Yun-Seog 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-7 State of residence KR III-5-1 This person is: applicant and inventor US only US only State of residence KR III-5-2 Applicant and/or inventor US only YoON, Suk-Bon Address: applicant and inventor US only YoON, Suk-Bon Se6-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea KR III-5-6 State of nationality KR State of nationality KR State of nationality KR III-5-6 State of nationality KR State of nationality	111-3-2	1 1 1	
Yuseong-gu, 305-728 Daejeon Republic of Korea KR	III-3-4	Name (LAST, First)	
305-728 Daejeon Republic of Korea Republic	111-3-5	Address:	
Republic of Korea Republic of Korea RR RR RR RR RR RR RR RR RR	•		
III-3-6 State of nationality KR KR III-3-7 State of residence KR III-4 Applicant and/or inventor This person is: applicant and inventor III-4-1 This person is: applicant and inventor III-4-2 Applicant for US only III-4-4 Name (LAST, First) KANG, Yun-Seog III-4-5 Address: 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-7 State of residence KR III-5-1 This person is: applicant and inventor III-5-2 Applicant and/or inventor US only III-5-5 Address: 466-2 Goegok-dong, Seo-gu, 302-110 Daejeon III-5-6 State of nationality KR III-5-6 State of nationality KR III-5-6 State of nationality KR III-5-7 State of nationality KR III-5-8 State of nationality KR III-5-9 State of nationality KR III-5-1 State of nationality KR III-5-2 State of nationality KR III-5-3 State of nationality KR III-5-4 State of nationality KR III-5-6 State of nationality KR III-5-7 State of nationality KR III-5-8 State of nationality KR III-5-9 State of nationality KR III-5-1 State of nationality State of n			
State of residence KR	•		
III-4 Applicant and/or inventor Applicant for US only III-4-4 Name (LAST, First) KANG, Yun-Seog 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-7 State of rationality KR III-5-1 This person is: Applicant and/or Inventor III-5-2 Applicant for US only III-5-5 Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR III-5-6 State of nationality KR State of nationality KR III-5-6 State of nationality KR State of nationality State of nationality KR State of nationality State	111-3-6	1	KR
III-4-1 This person is: applicant and inventor US only KANG, Yun-Seog 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-7 State of residence KR III-5-1 This person is: applicant and inventor US only Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-5-2 Applicant and/or inventor US only YoON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR III-5-6 State of nationality KR III-5-6 State of nationality KR KR KR III-5-6 State of nationality KR KR KR III-5-6 State of nationality KR KR III-5-6 State of nationality KR KR III-5-6 KR III-5-6 State of nationality KR III-5-6 KR III-5-	111-3-7		KR
III-4-2 Applicant for US only KANG, Yun-Seog 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-7 State of residence KR III-5-1 This person is: Applicant and/or inventor III-5-4 Applicant for US only YOON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR III-5-6 State of nationality KR KR III-5-6 State of nationality KR KR III-5-6 State of nationality KR KR KR KR KR KR KR K	111-4	Applicant and/or inventor	
Name (LAST, First) KANG, Yun-Seog 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea KR	· III-4-1	This person is:	
Address: 106-1307 Expo Apt., Jeonmin-dong, Yuseong-gu, 305-761 Daejeon Republic of Korea	111-4-2	Applicant for	· •
Yuseong-gu, 305-761 Daejeon Republic of Korea KR III-4-6 State of nationality KR III-5 Applicant and/or inventor III-5-1 This person is: applicant and inventor III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon III-5-5 Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR	111-4-4	Name (LAST, First)	
305-761 Daejeon Republic of Korea KR III-4-6 State of nationality KR III-5 Applicant and/or inventor III-5-1 This person is: Applicant for III-5-2 Applicant for III-5-4 Name (LAST, First) III-5-5 Address: Republic of Korea WR applicant and inventor US only YOON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR	111-4-5	Address:	•
Republic of Korea III-4-6 State of nationality KR III-5-7 State of residence KR III-5-1 This person is: applicant and inventor III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon III-5-5 Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR			
III-4-6 State of nationality KR III-4-7 State of residence KR III-5 Applicant and/or inventor III-5-1 This person is: applicant and inventor III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon III-5-5 Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR			
III-4-7 State of residence KR III-5 Applicant and/or inventor III-5-1 This person is: applicant and inventor III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon III-5-5 Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR			·
III-5-1 This person is: III-5-2 Applicant for III-5-4 Name (LAST, First) III-5-5 Address: III-5-6 State of nationality Applicant and inventor US only YOON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea	III -4 -6	State of nationality	KR
This person is: III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon III-5-5 Address: III-5-6 State of nationality This person is: applicant and inventor US only YOON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea KR	III - 4-7	State of residence	KR
III-5-2 Applicant for US only III-5-4 Name (LAST, First) YOON, Suk-Bon Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea III-5-6 State of nationality KR	111-5	Applicant and/or inventor	
Name (LAST, First) Name (LAST, First) Address: YOON, Suk-Bon 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea KR	III-5-1	This person is:	\
Address: 866-2 Goegok-dong, Seo-gu, 302-110 Daejeon Republic of Korea KR	111-5-2	Applicant for	1
302-110 Daejeon Republic of Korea KR	111-5-4	Name (LAST, First)	
Republic of Korea KR KR	111-5-5	Address:	
III-5-6 State of nationality KR		1	
			Republic of Korea
III-5-7 State of residence KR	III-5 - 6	State of nationality	KR
	111-5-7	State of residence	KR



Original (for SUBMISSION) - printed on 12.06.2003 02:09.42 PM

111-6	Applicant and/or inventor	
III-6-1	This person is:	applicant and inventor
111-6-2	Applicant for	US only
111-6-4	Name (LAST, First)	YU, Jong-Sung
111-6-5	Address:	103-903 Hyangchon Apt., Dunsan 2-dong,
	·	Seo-gu,
		302-776 Daejeon
		Republic of Korea
111-6-6	State of nationality	KR
111-6-7	State of residence	KR
īV-1	Agent or common representative; or	
•	address for correspondence The person identified below is	agent
	hereby/has been appointed to act on	,
	behalf of the applicant(s) before the competent International Authorities as:	
IV-1-1	Name (LAST, First)	LEE, Kwang-Bok
IV-1-2	Address:	4F., Byukcheon Bldg., 1597-5,
		Seocho-dong, Seocho-gu,
		137-876 Seoul
		Republic of Korea
V	Designation of States	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE BG CH&LI CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, i any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW



PCT03-034

Original (for SUBMISSION) - printed on 12.06.2003 02:09:42 PM

V-5	Precautionary Designation Statement		
	In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be		
	permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant		
•	declares that those additional designations are subject to confirmation		
.*	and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		-
V-6	Exclusion(s) from precautionary designations	NONE	
VI-1	Priority claim of earlier national application		
VI-1-1	Filing date	17 January 2003 (17.0	01.2003)
VI-1-2	Number	10-2003-0003367	
VI-1-3	Country	KR	
VI-2	Priority document request		
	The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1	055:20
VII-1 International Searching Authority Korean Intellectual Prop		Property Office	
	Cinoseii	(KIPO) (ISA/KR) Number of declarations	Γ
VIII	Declarations Declaration as to the identity of the	Number of declarations	
VIII-1	inventor		
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	-	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	-	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	Lateria Ele/a lattropod
		number of sheets	electronic file(s) attached
īX	Check list		
IX-1	Request (including declaration sheets)	5	-
	Check list Request (including declaration sheets) Description	5 12	-
IX-1	Request (including declaration sheets)	5	-
IX-1 IX-2	Request (including declaration sheets) Description	5 12	-
IX-1 IX-2 IX-3	Request (including declaration sheets) Description Claims	5 12 2	-





Original (for SUBMISSION) - printed on 12.06.2003 02:09:42 PM

PCT03-034

_	Accompanying items	paper document(s) attached	electronic file(s) attached
	Fee calculation sheet	✓	-
	Copy of general power of attorney	✓	-
	PCT-EASY diskette	-	Diskette
9	Figure of the drawings which should accompany the abstract	1	
0	Language of filing of the international application	Korean	
	Signature of applicant, agent or common representative		
1	Name (LAST, First)	LEE, Kwang-Bok	A section of

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application				 	
10-2	Drawings:					
10-2-1	Received		•	•		
10-2-2	Not received					
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application			• • •		
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)				 ·	
10-5	International Searching Authority	ISA/KR			 	
10-6	Transmittal of search copy delayed until search fee is paid					

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by	
	the International Bureau	